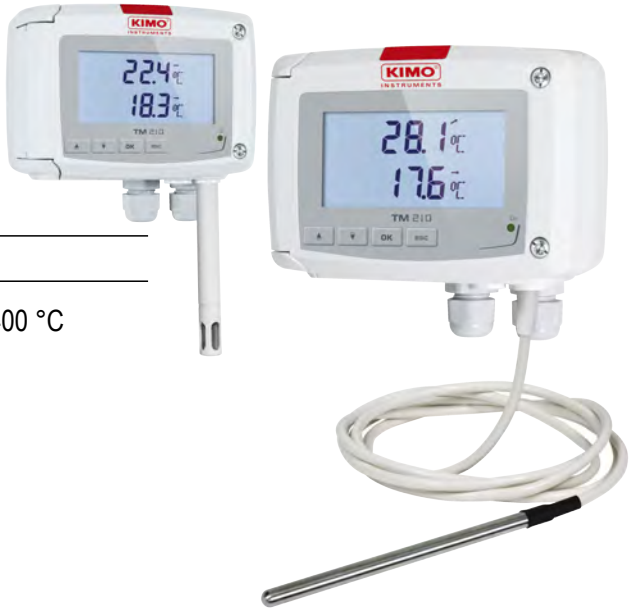
KIMO INSTRUMENTS

Technical Data Sheet

Pressure / Temperature / Humidity / Air Velocity / Airflow / Sound level

CE

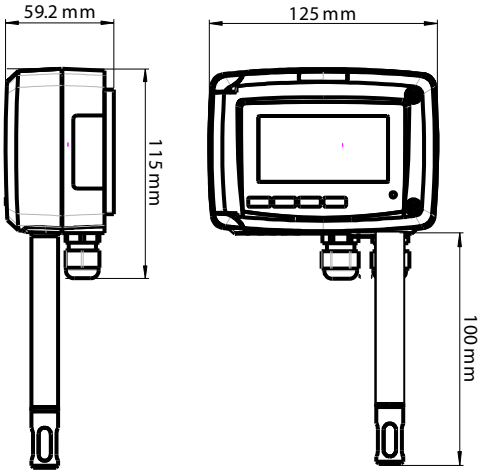
Temperature transmitter
TM 210



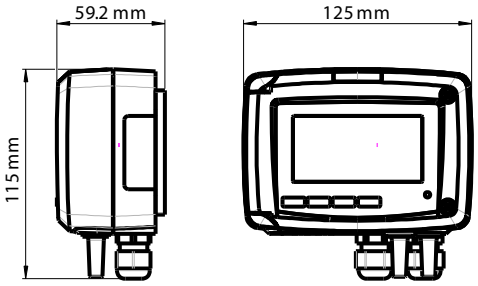
KEY POINTS

- Configurable ranges from 0 to 50 °C (ambient model) and from -100 to 400 °C (model with terminal block)
- Possibility of a second remote probe on terminal block
- Display of the minimum and maximum values and trend indicator
- 4 wires analogue outputs 0-5/10 V or 0/4-20 mA
- Alimentation 24 Vdc/Vac ou 115/230 Vac
- ABS V0 IP65 housing, with or without display
- "¼ turn" system mounting with wall-mount plate

FEATURES OF THE HOUSING



Ambient model



Model with terminal block

Material : ABS V0 as per UL94

Protection : IP65

Display : 75 x 40 mm, LCD 19 digits 2 lines.

Height of digits: Values : 10 mm ; Units : 5 mm

Cable gland : For cables Ø 8 mm maximum

Weight : 320 g

PAR NUMBER

To order, just add the codes to complete the part number :

TM 210 — ☐ — ☐ — ☐

Power supply / Output
B : 24 Vac/Vdc
H : 115 or 230 Vac

Display
O : With display
N : Without display

Type of probe
S : Ambient + Pt100 on terminal block
B : Two Pt100 on terminal block

Example : TM210 - BOS
Temperature transmitter, power supply 24 Vac/Vdc, with display et ambient probe

TECHNICAL FEATURES

Measuring range	From 0 to +50 °C (ambient model) From -100 to +400 °C (model with terminal block)
Unit of measurement	°C / °F
Accuracy*	±0.3 % of reading ±0.25 °C
Response time	T_{90} = 0.9 second for V_{air} = 1 m/s
Resolution	0.1 °C
Type of sensor	Pt100 1/3 as per DIN IEC751
Type of fluid	Air and neutral gases

*All the accuracies indicated in this technical datasheet were stated in laboratory conditions, and can be guaranteed for measurements carried out in the same conditions, or carried out with calibration compensation.

SPECIFICATIONS TECHNIQUES

Power supply	24 Vac / Vdc ±10 % 115 Vac or 230 Vac ±10 %, 50-60 Hz
Output	2 x 4-20 mA or 2 x 0-20 mA ou 2 x 0-5 V or 2 x 0-10 V (4 wires) Maximum load : 500 Ohms (0/4-20 mA) Minimum load : 1 K Ohms (0-5/10 V)
Galvanic isolation	Inputs and outputs (models 115 Vac/230 Vac) Outputs (models 24 Vac/Vdc)
Consumption	5 VA
Electromagnetical compatibility	EN61326
Electrical connection	Screw terminal block for cable 2.5 mm²
PC communication	Kimo USB-Mini Din cable
Environment	Air and neutral gases
Type of fluid	Air and neutral gases
Operating temperature	From 0 to +50 °C
Storage temperature	From -10 to +70 °C

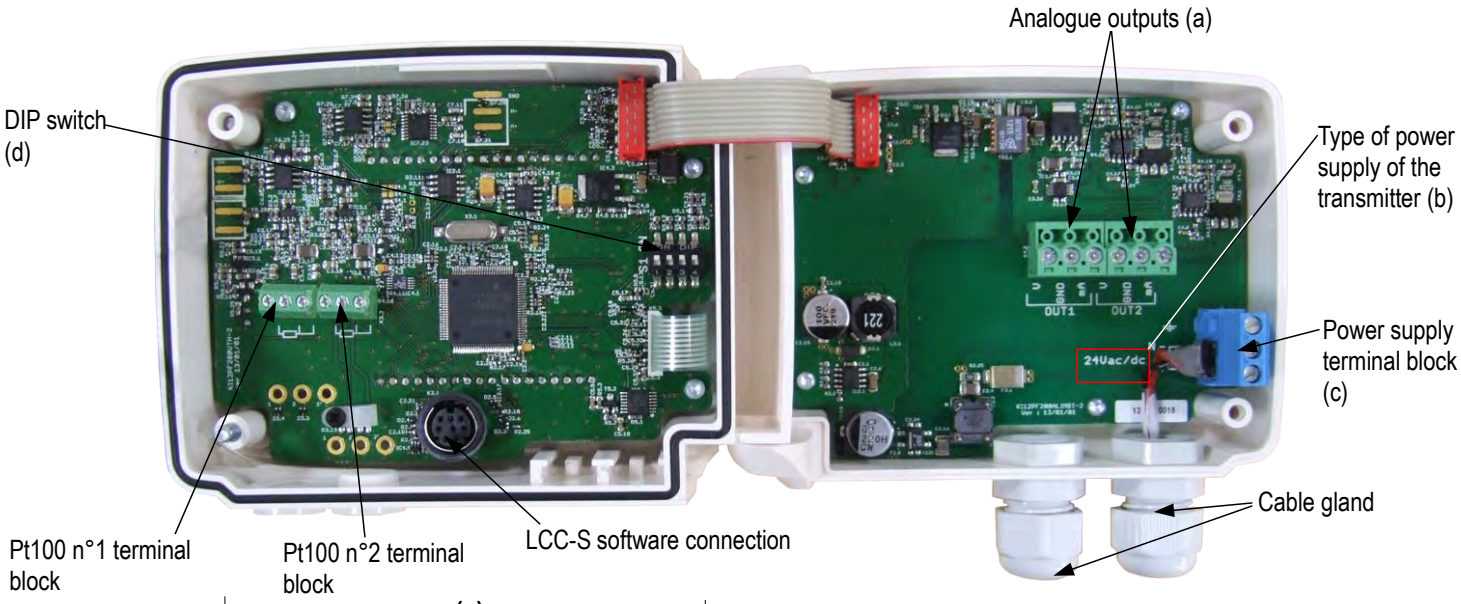
TECHNICAL FEATURES OF THE TEMPERATURE PROBES

Different Pt100 temperature probes are available on the range -100 to +400 °C with different types of contact tip (straight stainless steel, angled stainless steel, with penetration tip...). Please contact us in order to define the type of probe that corresponds to your need.

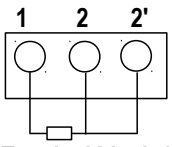
FUNCTION

Temperature difference : TM210 transmitter can measure up to two temperatures (temperature 1 and temperature 2). When two temperature probes are connected, the transmitter can display the difference between both measured temperatures.

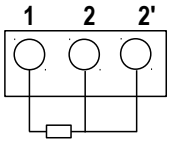
CONNECTIONS



Pt100 wiring



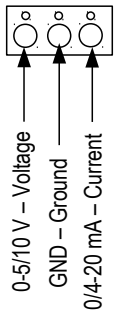
Terminal block 1



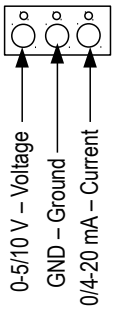
Terminal block 2

(a)

Analogue output 1 (out 1)

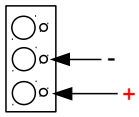


Analogue output 2 (out 2)



(c)

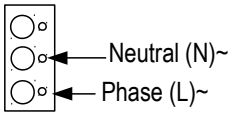
For power supply **24 Vdc** models



or

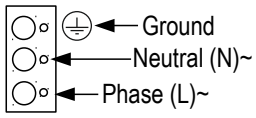
(c)

For power supply **24 Vac** models



(c)

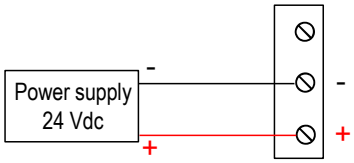
For power supply **230 Vac, 115 Vac** models



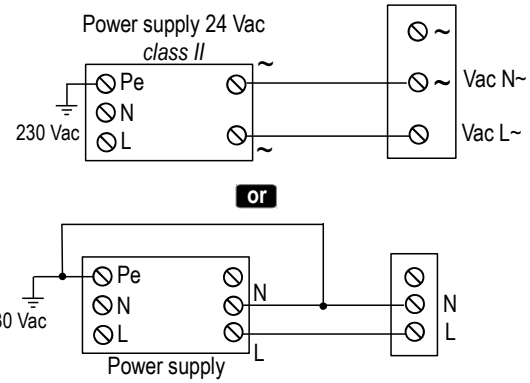
ELECTRICAL CONNECTIONS – as per *NFC15-100 standard*

This connection must be made by a qualified technician. To make the connection, the transmitter must not be energized. Before making the connection, you must first check the power supply indicated on the transmitter board (see (b) on "Connections" part).

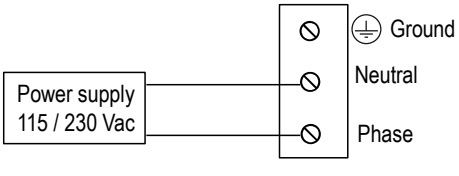
➢ **For transmitters with 24 Vdc power supply :**



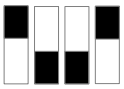
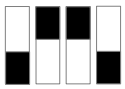
➢ **For transmitters with 24 Vac power supply :**



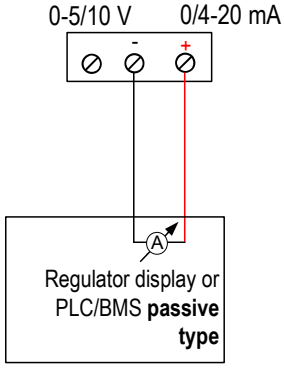
➢ **For transmitters with 115 or 230 Vac power supply :**



The selection of the output signal in voltage (0-10 V or 0-5 V) or in current (4-20 mA or 0-20 mA) is made via the DIP switch (d) of the electronic board of the transmitter : put the on-of switches as shown in the table below :

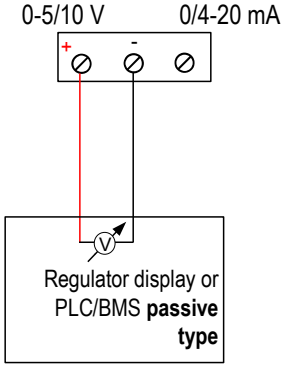
Configurations	4-20 mA	0-10 V	0-5 V	0-20 mA
Combinations				

➢ **Connection of the output in current 4-20 mA :**



4-20 mA output

➢ **Connection of output in voltage 0-10 V :**



0-10 V output

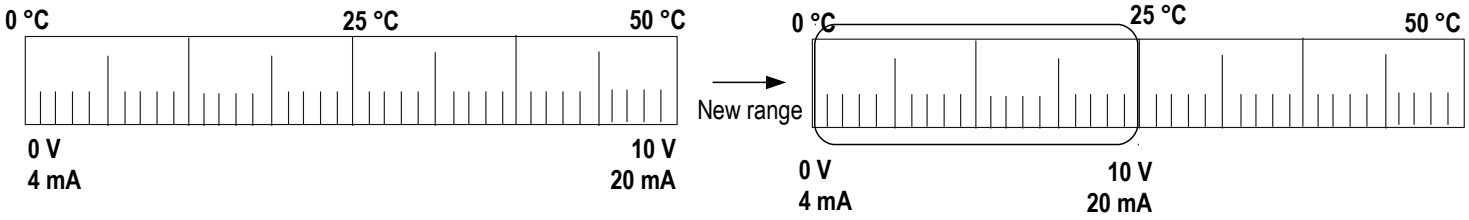
CONFIGURATION OF THE TRANSMITTERS

It is possible on the class 210 to configure all the parameters of the transmitter : units, measuring ranges, outputs, channels, calculation functions, etc, via different methods :

- **Keypad** for models with display : a code-locking system allows to secure the installation (See class 210 user manual).
- **Software** (optional) on all models. Simple user-friendly configuration. See LCC-SD user manual.

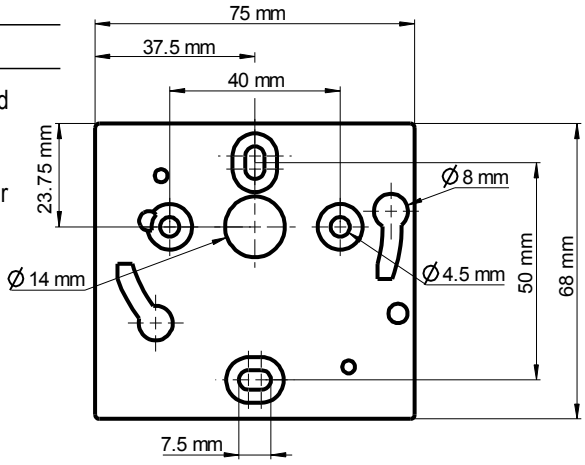
Configurable analogue output :
It is possible to configure your own intermediary ranges
Caution : the minimum difference between the high range and the low range is 20.

Configure the range according to your needs : outputs are automatically adjusted to the new measuring range



MOUNTING

To mount the transmitter, mount the ABS plate on the wall (drilling : Ø6 mm, screws and pins are supplied).
Insert the transmitter on the fixing plate (see A on the drawing beside). Rotate the housing in clockwise direction until you hear a “click” which confirms that the transmitter is correctly installed.



CALIBRATION

Outputs diagnostic : With this function, you can check with a multimeter (or on a regulator / display, or a PLC / BMS) if the transmitter outputs work properly. The transmitter generates a voltage of 0 V, 5 V and 10 V or a current of 4 mA, 12 mA and 20 mA

Certificate : Class 210 transmitters are supplied with adjusting certificates. Calibration certificates are available as an option.

MAINTENANCE

Please avoid any aggressive solvent. Please protect the transmitter and its probes from any cleaning product containing formalin, that may be used for cleaning rooms or ducts.

OPTIONS AND ACCESSORIES

- **LCC-S :** configuration software with USB cable
- **Calibration certificate**
- Pt100 temperature probes

FTang – transmitter_TM210 – 02/04/13 – RCS (24) Périgueux 349 282 095 Non-contractual document – We reserve the right to modify the characteristics of our products without prior notice.

KIMO INSTRUMENTS

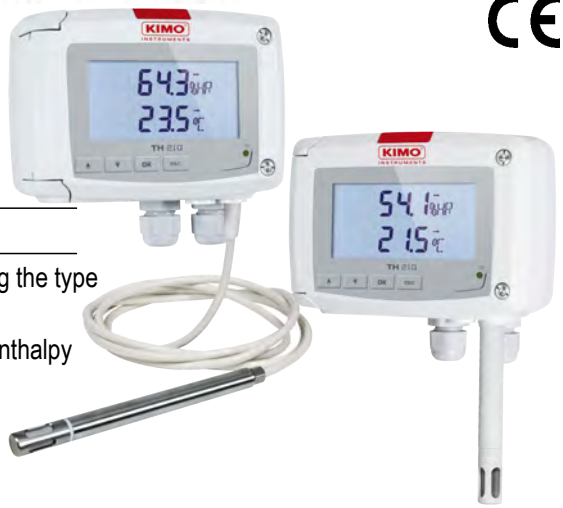
Technical Data Sheet

Pressure / Temperature / Humidity / Air Velocity / Airflow / Sound level

CE

Humidity and temperature transmitter

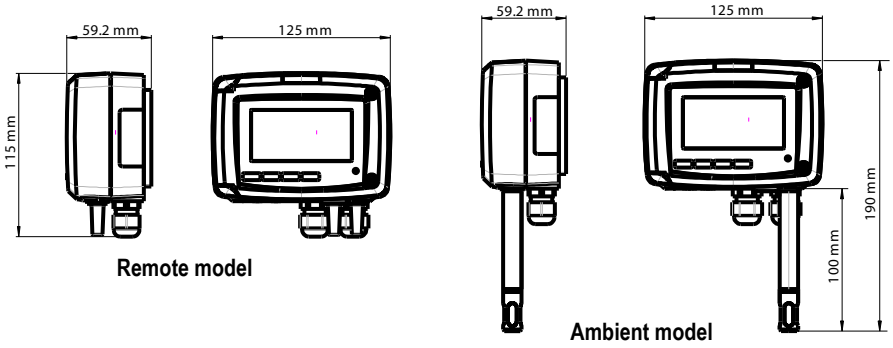
TH 210



KEY POINTS

- Configurable measuring ranges from 5 to 95%HR and from -40 to +180 °C (according the type of probe)
- Functions : relative and absolute humidity, dew point, wet and dry temperature and enthalpy
- Stainless steel or polycarbonate probe
- 4 wires analogue output 0-5/10 V or 0/4-20 mA
- Power supply 24 Vdc/Vac or 115/230 Vac
- Trend indicator
- ABS V0 IP65 housing, with or without display
- "¼ turn" system mounting with wall-mount plate

FEATURES OF THE HOUSING



Remote model

Ambient model

Material : ABS V0 as per UL94

Protection : IP65

Display : 75 x 40 mm, LCD 20 digits 2 lines.

Height of digits : Values : 10 mm ; Units : 5 mm

Cable gland : For cables Ø 8 mm maximum

Weight : 320 g

TECHNICAL FEATURES IN HUMIDITY

Measuring range	From 5 to 95%RH
Unit of measurement	%RH
Accuracy* **(Repeatability, linearity, hysteresis)**	±1.5%RH (if 15°C ≤ T ≤ 25 °C)
Drift linked to temperature	±0.04 x (T-20)%RH (if T < 15°C or T > 25°C)
Resolution	0.1%RH
Factory calibration uncertainty	±0.88%RH
Response time	< 10 seconds (from 10 to 80%RH, V_{air} = 2 m/s)
Type of sensor	capacitive
Type of fluid	Air and neutral gases

*All accuracies indicated in this technical datasheet were stated in laboratory conditions, and can be guaranteed for measurements carried out in the same conditions, or carried out with calibration compensation.
As per NFX 15-113 and the *Charter 2000/2001 HYGROMETERS*, GAL (Guaranteed Accuracy Limit) which has been calculated with a coverage factor value of 2 is ±2.58%RH between 18 and 28°C on the measuring range from 3 to 98%RH. Sensor drift is less than 1%RH/year.

FUNCTIONS

Class 210 transmitters have two analogue outputs which correspond to both displayed parameters. It is possible to activate one or two outputs and to select for each between humidity, temperature and the functions described above** :

Absolute humidity : from 2 to 30 000 g/kg ; unit : 1 g/kg

Dew point : from -60 to +100 °Ctd ; unit : 0.1°Ctd / 0.1 °Ftd

Dry temperature : from -20 to +102 °C ; unit : 0.1°C / 0.1 °F

Enthalpy : from 0 to 15 000 Kj/kg ; unit : 0.1 Kj/kg

**The default configuration for the output 1 is 0-100%RH in hygrometry and 0-50°C in temperature for the output 2.

PART NUMBER

To order, just add the codes to complete the part number :

TH 210 — [ ] — [ ] — [ ] — [ ] — [ ]

Power supply / Output
B : 24 Vac/Vdc
H : 115 or 230 Vac

Display
O : with display
N : without display

Mounting of the probe
D : remote
S : ambient

Type of probe
I : stainless steel
P : polycarbonate

Probe length (mm)
150 : remote
300 : remote

Example : TH210 - BNDP150
Temperature and humidity transmitter, power supply 24 Vac/Vdc, without display, with remote probe in polycarbonate of 150 mm length.

TECHNICAL FEATURES IN TEMPERATURE

Measuring range	Ambient model : from 0 to +50 °C Remote model with polycarbonate probe : from -20 to +80 °C Remote model with stainless steel probe : from -40 to +180 °C
Unit of measurement	°C / °F
Accuracy*	±0.3 % of reading ±0.25 °C
Response time	T_{90} = 0.9 second for V_{air} = 1 m/s
Resolution	0.1 °C
Type of sensor	Pt100 1/3 as per DIN IEC751
Type of fluid	Air and neutral gases

*All the accuracies indicated in this technical datasheet were stated in laboratory conditions, and can be guaranteed for measurements carried out in the same conditions, or carried out with calibration compensation.

TECHNICAL FEATURES OF THE PROBE

➢ ***White polycarbonate probe***

Measuring range	From -20 to +80 °C
Length of standard probe	100 mm
Length of remote probe	150 or 300 mm (other on request)
Cable	Silicone Ø4.8 mm, length 2 m (other on request)

Polycarbonate probes are supplied with a flow-through polycarbonate protection tip with a stainless steel filter 25 µ (ref. : EPP2).

➢ ***316 L stainless steel prone***

Measuring range	From -40 to +180 °C
Length of remote probe	150 or 300 mm (other on request)
Cable	Silicone Ø4.8 mm, length 2 m (other on request)

Stainless steel probes are supplied with a flow through stainless steel protection tip with a stainless steel filter 25 µ (ref. : EPI25).

➢ ***Type of tips***

Part number / ***Specifications***	**EPP2**	**EPI25**	**EPI100**	**EPFI**	**EPFT**	**EPH2O2**
Tip material	PC[1]	St. steel[2]	St. steel[2]	St. steel[2]	PTFE[3]	MnO_2 [4]
Filter material	St. steel	St. steel	St. steel	St. steel	PTFE	PTFE
Filter type	Meshed	Meshed	Meshed	Sintered	Sintered	Sintered
Maximum particle	25 µ	25 µ	100 µ	10 µ	50 µ	50 µ
Maximum air velocity	25 m/s	25 m/s	20 m/s	30 m/s	25 m/s	25 m/s
Maximum temperature	120 °C	180 °C	120 °C	180 °C	180 °C	180 °C
Relative humidity maximum	95%RH	95%RH	100%RH	90%RH	90%RH	95%RH
Length	30 mm	30 mm	30 mm	30 mm	30 mm	33 mm
Application						
HVAC air-conditioning system	x	x				
Cold storage room			x		x	
Industry	x	x	x	x	x	
Pharma plants / Microelectronics	x	x	x	x	x	x
Dryer				x	x	
Curing				x		
Swimming-pool			x			

External aggression :
Tips protect against the following external aggressions :

- **Water droplets :** EPFT
- **Shaving :** EPI25 et EPFI
- **Dust :** EPFI
- **Chemical product and grease :** EPFT
- **H_2O_2 (hydrogen peroxide) :** EPH2O2

[1] **PC :** white polycarbonate
[2] **Stainless steel :** 316 L
[3] **PTFE :** white Teflon®
[4] **MnO_2 :** manganese dioxide

TECHNICAL SPECIFICATIONS

Power supply
24 Vac / Vdc ±10 %
115 Vac or 230 Vac ±10 %, 50-60 Hz

Output
2 x 4-20 mA or 2 x 0-20 mA ou 2 x 0-5 V ou 2 x 0-10 V (4 wires)
Maximum load : 500 Ohms (0/4-20 mA)
Minimum load : 1 K Ohms (0-5/10 V)

Galvanic isolation
Inputs and outputs (models 115 Vac/230 Vac)
Outputs (models 24 Vac/Vdc)

Consumption
5 VA

Electromagnetical compatibility
EN61326

Electrical connection
Screw terminal block for cable 2.5 mm²

PC communication
Kimo USB-Mini Din cable

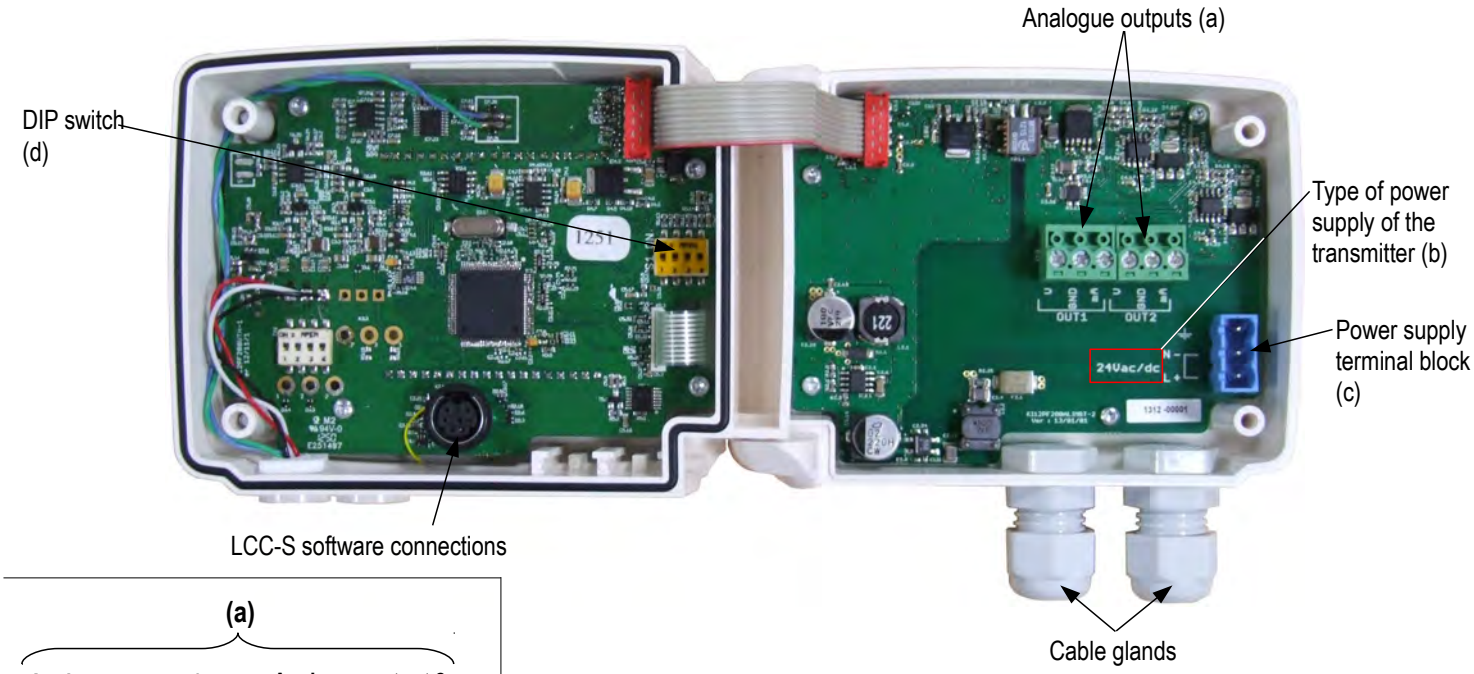
Environment
Air and neutral gases

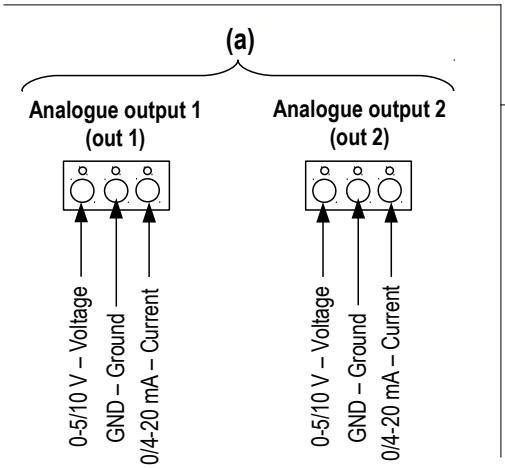
Type of fluid
Air and neutral gases

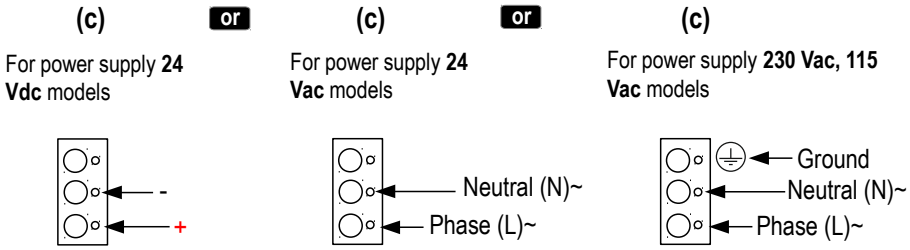
Operating temperature
From 0 to +50 °C

Storage temperature
From -10 to +70 °C

CONNECTIONS


Analogue outputs (a)
DIP switch (d)
Type of power supply of the transmitter (b)
Power supply terminal block (c)
LCC-S software connections
Cable glands

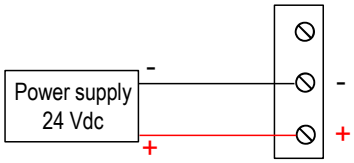




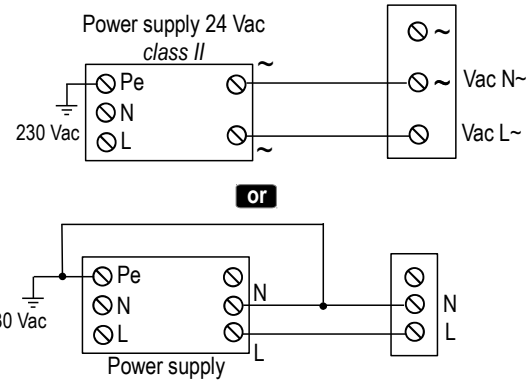
ELECTRICAL CONNECTIONS – as per *NFC15-100 standard*

This connection must be made by a qualified technician. To make the connection, the transmitter must not be energized.
Before making the connection, you must first check the power supply indicated on the transmitter board (see (b) on "Connections" part).

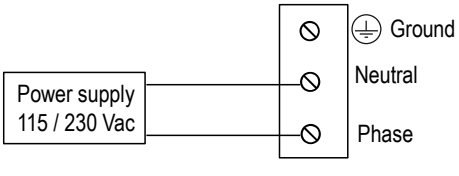
➢ **For transmitters with 24 Vdc power supply :**



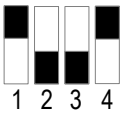
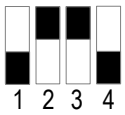
➢ **For transmitters with 24 Vac power supply :**



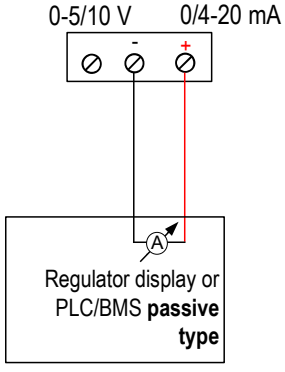
➢ **For transmitters with 115 or 230 Vac power supply :**



The selection of the output signal in voltage (0-10 V or 0-5 V) or in current (4-20 mA or 0-20 mA) is made via the DIP switch (d) of the electronic board of the transmitter : put the on-of switches as shown in the table below :

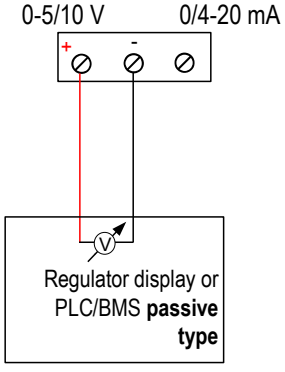
Configurations	4-20 mA	0-10 V	0-5 V	0-20 mA
Combinations				

➢ **Connection of the output in current 4-20 mA :**



4-20 mA output

➢ **Connection of output in voltage 0-10 V :**



0-10 V output

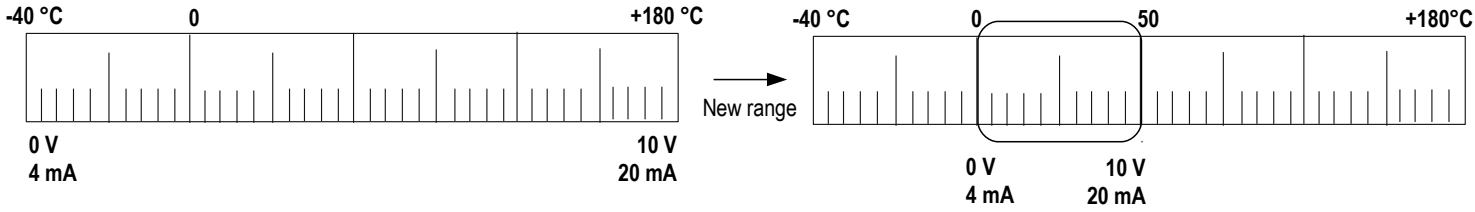
CONFIGURATION OF THE TRANSMITTERS

It is possible on the class 210 to configure all the parameters of the transmitter : units, measuring ranges, outputs, channels, calculation functions, etc, via different methods :

- **Keypad** for models with display : a code-locking system allows to secure the installation (See class 210 user manual).
- **Software** (optional) on all models. Simple user-friendly configuration. See LCC-SD user manual.

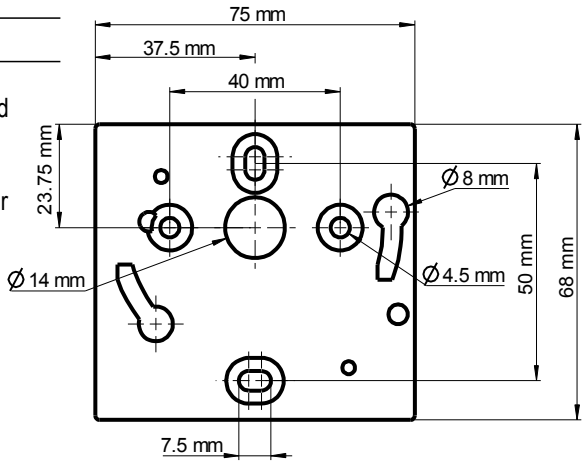
Configurable analogue output :
Range with center zero (-40/0/+40 °C), with offset zero (-30/0/+70 °C) or standard range (0/+100 °C), It is possible to configure your own intermediary ranges
Caution : the minimum difference between the high range and the low range is 20.

Configure the range according to your needs : outputs are automatically adjusted to the new measuring range



MOUNTING

To mount the transmitter, mount the ABS plate on the wall (drilling : Ø6 mm, screws and pins are supplied).
Insert the transmitter on the fixing plate (see A on the drawing beside). Rotate the housing in clockwise direction until you hear a “click” which confirms that the transmitter is correctly installed.



CALIBRATION

Outputs diagnostic : With this function, you can check with a multimeter (or on a regulator / display, or a PLC / BMS) if the transmitter outputs work properly. The transmitter generates a voltage of 0 V, 5 V and 10 V or a current of 4 mA, 12 mA and 20 mA

Certificate : Class 210 transmitters are supplied with adjusting certificates. Calibration certificates are available as an option.

MAINTENANCE

Please avoid any aggressive solvent. Please protect the transmitter and its probes from any cleaning product containing formalin, that may be used for cleaning rooms or ducts.

OPTIONS AND ACCESSORIES

- **LCC-S :** configuration software with USB cable
- **Calibration certificate**
- Sliding fittings
- Connection fittings
- Cable glands
- Protections tips
- Wall-mounting support bracket for remote humidity probe

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KIMO INSTRUMENTS

Technical Data Sheet

Pressure / Temperature / Humidity / Air Velocity / Airflow / Sound level

CE

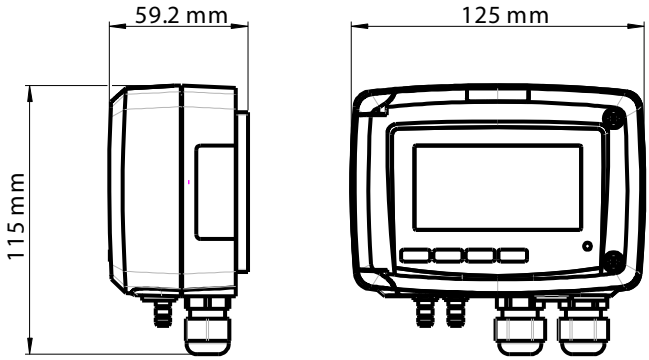
Temperature and differential pressure transmitter

CP 210

KEY POINTS

- Range from -100/+100 Pa to -2000/+2000 mbar (according to, see “Part number”)
- Input Pt100 on terminal block for temperature measurement, range from -100 to +400 °C (probes as option)
- Configurable intermediate ranges
- 4 wires analogue output 0-5/10 V or 0/4-20 mA
- Power supply 24 Vdc/Vac or 115/230 Vac
- Trend indicator
- ABS V0 housing, IP65, with or without display
- “¼ turn” system mounting with wall-mount plate
- Solenoid valve for auto-calibration (only on CP211 and CP212 models)

FEATURES OF THE HOUSING



Material : ABS V0 as per UL94

Protection : IP65

Display : 75 x 40 mm, LCD 19 digits 2 lines.

Height of digits : Values : 10 mm ; Units : 5 mm

Connection : Ribbed Ø 6.2 mm (CP211/212)
Compression for tubes Ø4x6 mm (CP213/214/215)

Pass-through : for cables Ø 6 mm maximum

Cable gland : for cables Ø 8 mm maximum

Weight : 320 g

PART NUMBER

To order, just add the codes to complete the part number :

CP 21 — [ ] — [ ] — [ ]

Measuring range
1 : -100/+100 Pa
2 : -1000/+1000 Pa
3 : -10 000/+10 000 Pa
4 : -500/+500 mbar
5 : -2000/+2000 mbar

Power supply / Output
B : 24 Vac/Vdc
H : 115 or 230 Vac

Display
O : with display
N : without display

Example : CP 211 – HO
Pressure transmitter -100/+100 Pa measuring range, with power supply 115 or 230 Vac, with display

TECHNICAL FEATURES

Units of measurement	**CP211/212/213 :** Pa, mmH_2O, mbar, inWG, mmHG, daPa, kPa, hPa **CP214 :** mbar, mmH_2O, kPa, inWG, mmHG, hPa, daPa, PSI **CP215 :** mbar, mmH_2O, kPa, inWG, mmHG, hPa, daPa, PSI, bar **CP211/212/213/214/215 (température Pt100) :** °C / °F
Accuracy*	**CP211/212 :** ±0.5% of reading ±2 Pa ; **CP213 :** ±0.5% of reading ±10 Pa ; **CP214 :** ±0.5% of reading ±0.5 mbar **CP215 :** ±0.5 of reading ±2 mbar **CP211/212/213/214/215 (Pt100 temperature) :** ±0.5 % of reading ±0.5 °C
Response time	1/e (63%) 0.3 s
Resolution	**CP211/212/213 :** 1 Pa ; 0.1 mmH_2O ; 0.01 mbar ; 0.01 inWG ; 0.01 mmHG ; 0.1 daPa ; 0.001 kPa ; 0.01hPa **CP214 :** 1 mbar ; 1 mmH_2O ; 0.1 kPa ; 0.1 inWG ; 0.01 mmHG ; 1 hPa ; 10 daPa ; 0.01 hPa **CP215 :** 1 mbar ; 1 mmH_2O ; 0.1 kPa ; 0.1 inWG ; 0.01 mmHG ; 1 hPa ; 10 daPa ; 0.01 hPa ; 0.001 bar
Tolerated overpressure	**CP211/212 :** 21 000 Pa – **CP213 :** 69 000 Pa – **CP214 :** 1400 mbar – **CP215 :** 4100 mbar

*All the accuracies indicated in this technical datasheet were stated in laboratory conditions, and can be guaranteed for measurements carried out in the same conditions, or carried out with calibration compensation.

TECHNICAL SPECIFICATIONS

Power supply	24 Vac / Vdc ±10 % 115 Vac or 230 Vac ±10 %, 50-60 Hz
Output	2 x 4-20 mA or 2 x 0-20 mA or 2 x 0-5 V or 2 x 0-10 V (4 wires) Maximum load : 500 Ohms (0/4-20 mA) Minimum load : 1 K Ohms (0-5/10 V)
Galvanic isolation	Inputs and outputs (115 Vac/230 Vac models) Outputs (24 Vac/Vdc models)
Consumption	5 VA
Electromagnetical compatibility	EN61326
Electrical connection	Screw terminal block for cables 2.5 mm^2
PC communication	Kimo USB-Mini Din cable
Environment	Air and neutral gases
Autozero	Manual by push-button ; Automatic by solenoid valve (only CP211/CP212)
Type of fluid	Air and neutral gases
Operating temperature	From 0 to +50 °C
Storage temperature	From -10 to +70 °C

CONFIGURABLE INTERMEDIATE OR CENTER ZERO RANGES

Transmitter	Pressure range	Air velocity range*
CP211	-100/+100 Pa	From 3 to 10 m/s
CP212	-1000/+1000 Pa	From 3 to 30 m/s
CP213	-10 000/+10 000 Pa	From 3 to 100 m/s
CP214	-500/+500 mbar	Not available
CP215	-2000/+2000 mbar	Not available

*These air velocity ranges are given for information, based on a Debimo differential probe (Cm = 0.81) and do not take into account temperature compensation.

AIR FLOW AND AIR VELOCITY FUNCTION *(available option on CP211, CP212 and CP213 instruments)*

Class 210 transmitters have 2 analogue outputs that correspond to both displayed parameters. It is possible to activate one or two outputs and select for each output between pressure, air velocity and air flow (functions as option).

Linked to a differential pressure device (Debimo blade, Pitot tube, orifice plate, …), they can be equipped as option with the SQR 3 function (square root function) allowing to calculate the air velocity and/or air flow in a duct from a differential pressure.

Features / *Functions*	Measuring ranges	Units and resolutions
Air velocity*	From 3 to 100 m/s (according to model)	0.1 m/s – 0.1 fpm
Air flow*	From 0 to 100 000 m^3/h (according to air velocity and section)	$1 m^3/h$ – 0.1 m^3/s 0.1l/s – 1 cfm

*Differential pressure device (Pitot tube, Debimo...) as option

- **Air velocity calculation :** $V = C_M \sqrt{\frac{2 \Delta P}{\rho}}$

$$\rho = \frac{P_O}{287.1 \times (\Theta + 273.15)}$$

With :
C_M : differential pressure device coefficient
- Pitot tube type L : C_M = 1.0015
- Pitot tube type S : C_M = 0.84
-Debimo blade : C_M = 0.8165

Θ : given temperature (°C)
P_o : given atmospheric pressure (Pa)

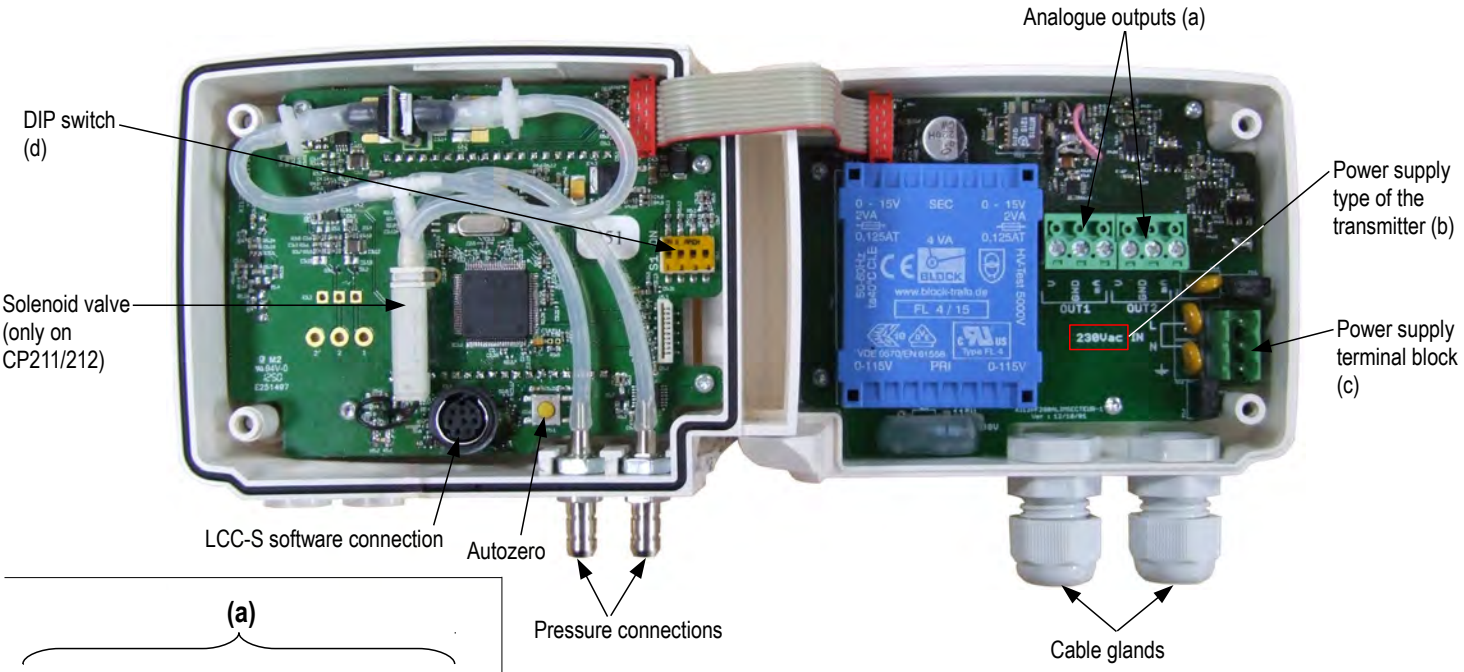
- **Air flow calculation :** Air flow (m^3/h) = air velocity (m/s) x surface (m^2) x 3600

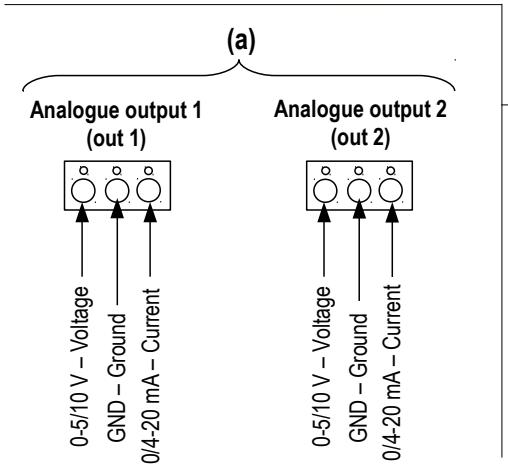
Surface : setting of duct type (rectangular or circular) and duct size (mm or inch).

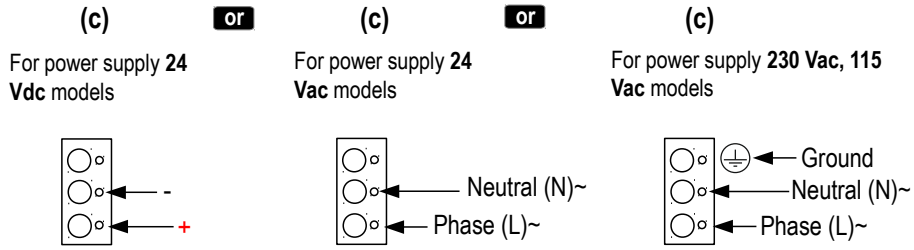
INTEGRATION OF PRESSURE MEASUREMENT

The pressure measurement element is very sensitive and reacts to pressure changes. When making measurements in unstable air movement conditions, the pressure measurement may fluctuate. The integration coefficient (from 0 to 9) makes an average of the measurements and then helps avoid any excessive variations ; it guarantees a stable measurement.

CONNECTIONS



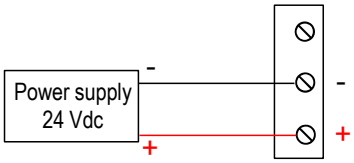




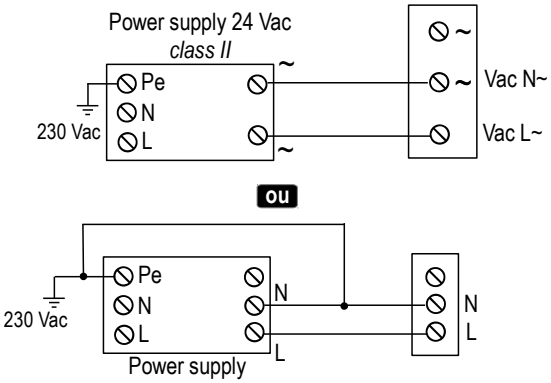
ELECTRICAL CONNECTIONS – as per *NFC15-100 standard*

This connection must be made by a qualified technician. To make the connection, the transmitter must not be energized.
Before making the connection, you must first check the power supply indicated on the transmitter board (see (b) on "Connections" part).

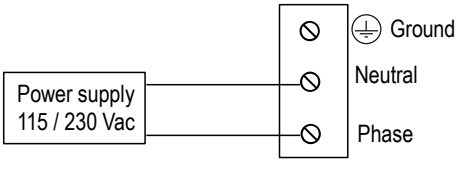
➢ **For transmitters with 24 Vdc power supply :**



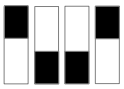
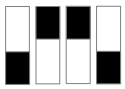
➢ **For transmitters with 24 Vac power supply :**



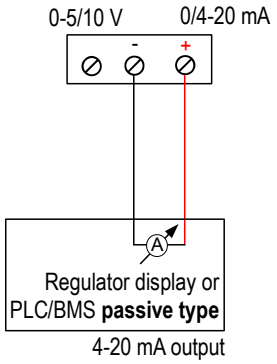
➢ **For transmitters with 115 or 230 Vac power supply :**



The selection of the output signal in voltage (0-10 V or 0-5 V) or in current (4-20 mA or 0-20 mA) is made via the DIP switch (d) of the electronic board of the transmitter : put the on-of switches as shown in the table below :

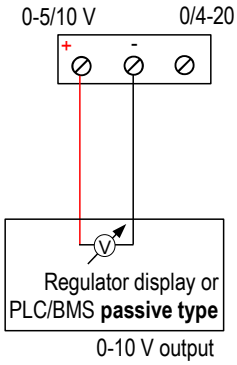
Configurations	4-20 mA	0-10 V	0-5 V	0-20 mA
Combinations				
	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4

➢ **Connection of the output in current 4-20 mA :**



4-20 mA output

➢ **Connection of output in voltage 0-10 V :**



0-10 V output

AUTOZERO

Auto-calibration
CP210 transmitters have a temperature compensation of the gain from 0 to 50°C and an auto-calibration process that guarantees over the time an excellent stability and a perfect reliability of the measurement on low and high ranges.
Auto-calibration principle : the microprocessor of the transmitter drives a solenoid valve that compensates the possible drifts on the sensitive element over the time. The compensation is performed by the permanent adjustment of the zero. So the measurement of the differential pressure is then independent from the environmental conditions of the transmitter.
Advantage : no drift
Frequency of auto-calibration : resetable or from 1 to 60 minutes

Autozero
To perform an autozero, unplug the 2 pressure connections tubes and press the **"Autozero"** key.
On CP211 and CP 212 transmitters, it is not necessary to unplug the 2 pressure connection tubes.
When an autozero has been performed, **"On"** green light turns off then turns on, and on transmitters equipped with a display, **"autoZ"** is displayed.

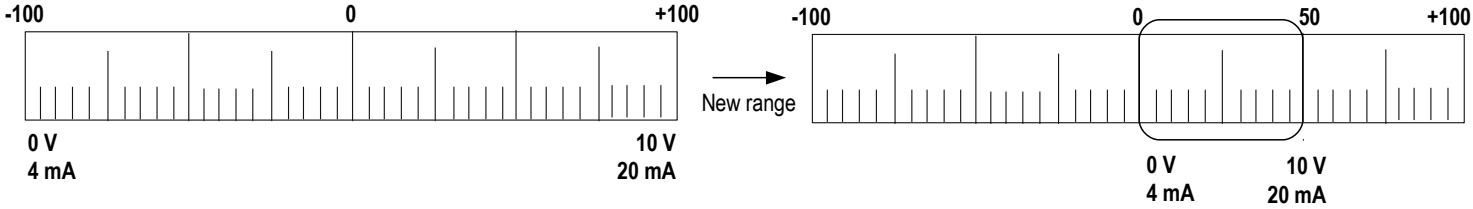
CONFIGURATION OF THE TRANSMITTERS

It is possible on the class 210 to configure all the parameters managed by the transmitter : units, measuring ranges, outputs, channels, calculation functions, etc, via different methods :

- **Keypad** for models with display : a code-locking system allows to secure the installation (See class 210 user manual).
- **Software** (optional) on all models. Simple user-friendly configuration. See LCC-SD user manual.

Configurable analogue output :
Range with central zero (-50/0/+50 Pa), with offset zero (-300/0/+70 Pa) or standard range (0/+100 Pa), it is possible to configure your own intermediate ranges.
Caution : the minimum difference between the high range and the low range is 20.

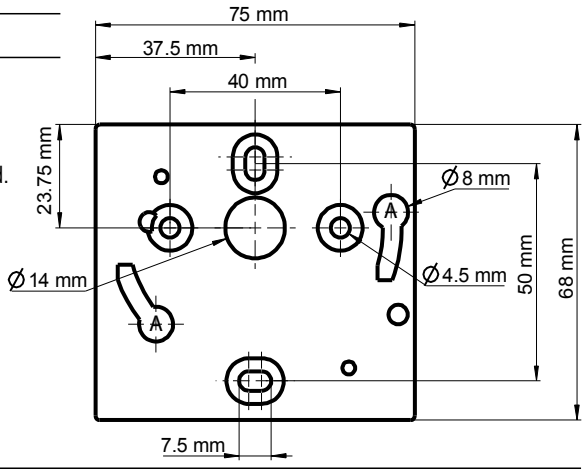
Configure the range according to your needs : outputs are automatically adjusted to the new measuring range



MOUNTING

To mount the transmitter, mount the ABS plate on the wall (drilling : Ø6 mm, screws and pins are supplied).
Insert the transmitter on the fixing plate (see A on the drawing beside). Rotate the housing in clockwise direction until you hear a "click" which confirms that the transmitter is correctly installed.

Once the transmitter is installed and powered up, please make an autozero to guarantee the correct working of the transmitter in any position.



CALIBRATION

Adjusting and calibration on site : The professional configuration interface, with a dynamic pressure calibration bench, enables you to adjust and calibrate your transmitters directly on site or in laboratories.

Outputs diagnostic : With this function, you can check with a multimeter (or on a regulator / display, or a PLC / BMS) if the transmitter outputs work properly. The transmitter generates a voltage of 0 V, 5 V and 10 V or a current of 4 mA, 12 mA and 20 mA

Certificate : Class 210 transmitters are supplied with adjusting certificates. Calibration certificates are available as an option.

MAINTENANCE

Please avoid any aggressive solvent. Please protect the transmitter and its probes from any cleaning product containing formalin, that may be used for cleaning rooms or ducts.

OPTIONS AND ACCESSORIES

- **LCC-S :** configuration software with USB cable
- **SQR/3 function** (square root for the measurement of air velocity and air flow)
- **Calibration certificate**
- Connection tube
- Connection fittings
- Through-connections
- Straight connections
- Spherical coupling nut

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KIMO INSTRUMENTS

Technical Data Sheet

Pressure / Temperature / Humidity / Air Velocity / Airflow / Sound level

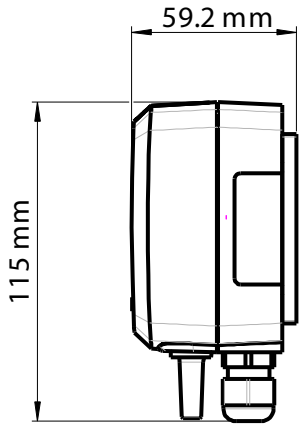
CE

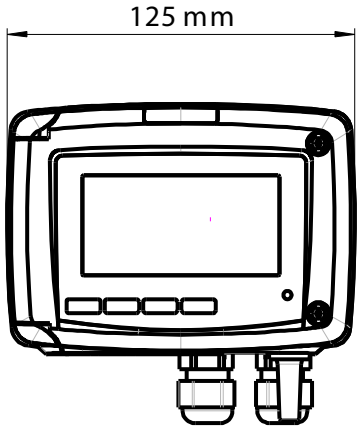
Air velocity and temperature transmitter
CTV 210

KEY POINTS

- Configurable ranges from 0 to 30 m/s (model with hot wire probe) and from 0 to 5 m/s (model with omnidirectional probe)
- Configurable range from 0 to 50 °C in temperature
- Airflow function
- 4 wires analogue output 0-5/10 V or 0/4-20 mA
- Power supply 24 Vdc/Vac or 115/230 Vac
- Trend indicator
- ABS V0 IP65 housing, with or without display
- "¼ turn" system mounting with wall-mount plate

FEATURES OF THE HOUSING





Material : ABS V0 as per UL94

Protection : IP65

Display : 75 x 40 mm, LCD 20 digits 2 lines.

Height of digits : Values : 10 mm ; Units : 5 mm

Cable gland : For cables Ø 8 mm maximum

Weight : 320 g

PART NUMBER

To order, just add the codes to complete the part number :

CTV 210 — [ ] — [ ] — [ ]

Power supply / Output
B : 24 Vac/Vdc
H : 115 or 230 Vac

Display
O : with display
N : without display

Mounting of the probe
S : standard
O : omnidirectional

Example : CTV210 - BOO300
Air velocity and temperature transmitter, power supply 24 Vac/Vdc, with display and omnidirectional probe of 300 mm length.

TECHNICAL FEATURES IN TEMPERATURE

Measuring range	From 0 to +50 °C
Unit of measurement	°C / °F
Accuracy*	±0.3 % of reading ±0.25 °C
Response time	T_{90} = 0.9 second for V_{air} = 1 m/s
Resolution	0.1 °C / 0.1 °F
Type of sensor	Pt100 1/3 as per DIN IEC751
Type of fluid	Air and neutral gases

TECHNICAL FEATURES IN AIR VELOCITY

Measuring range	Standard model : from 0 to 30 m/s Omnidirectional model : from 0 to 5 m/s
Unit of measurement	m/s, fpm, km/h
Accuracy* (standard and omnidirectional models)	Standard model : - from 0 to 3 m/s : ±3 % of reading ±0.03 m/s - from 3 to 30 m/s : ±3 % of reading ±0.1 m/s Omnidirectional model : from 0 to 5 m/s : ±3 % of reading ±0.05 m/s
Resolution	Standard model : from 0 to 3 m/s : 0.01 m/s and from 3 to 30 m/s : 0.1 m/s Omnidirectional model : from 0 to 5 m/s : 0.01 m/s All models : 1 fpm / 0.1 km/h
Response time	T_{63} = 1.6 s
Type of fluid	Clean air

*All the accuracies indicated in this technical datasheet were stated in laboratory conditions, and can be guaranteed for measurements carried out in the same conditions, or carried out with calibration compensation.

TECHNICAL FEATURES OF THE PROBES

➢ ***Hotwire probe***

Material of the probe	Stainless steel 316 L
Size	Ø 8 mm, length 300 mm
Operating temperature	From 0 to +50 °C
Cable	PVC Ø4.8 mm, length 2 m

➢ ***Omnidirectional probe***

Material of the probe	Stainless steel 316 L
Size	Length : 300 mm ; height : 85 mm
Operating temperature	From 0 to +50 °C
Cable	PVC Ø4.8 mm, length 2 m

TECHNICAL SPECIFICATIONS

Power supply
24 Vac / Vdc ±10 %
115 Vac or 230 Vac ±10 %, 50-60 Hz

Output
2 x 4-20 mA or 2 x 0-20 mA ou 2 x 0-5 V ou 2 x 0-10 V (4 wires)
Maximum load : 500 Ohms (0/4-20 mA)
Minimum load : 1 K Ohms (0-5/10 V)

Galvanic isolation
Inputs and outputs (models 115 Vac/230 Vac)
Outputs (models 24 Vac/Vdc)

Consumption
5 VA

Electromagnetical compatibility
EN61326

Electrical connection
Screw terminal block for cable 2.5 mm²

PC communication
Kimo USB-Mini Din cable

Environment
Air and neutral gases

Type of fluid
Air and neutral gases

Operating temperature
From 0 to +50 °C

Storage temperature
From -10 to +70 °C

Hotwire probe

Omnidirectional probe

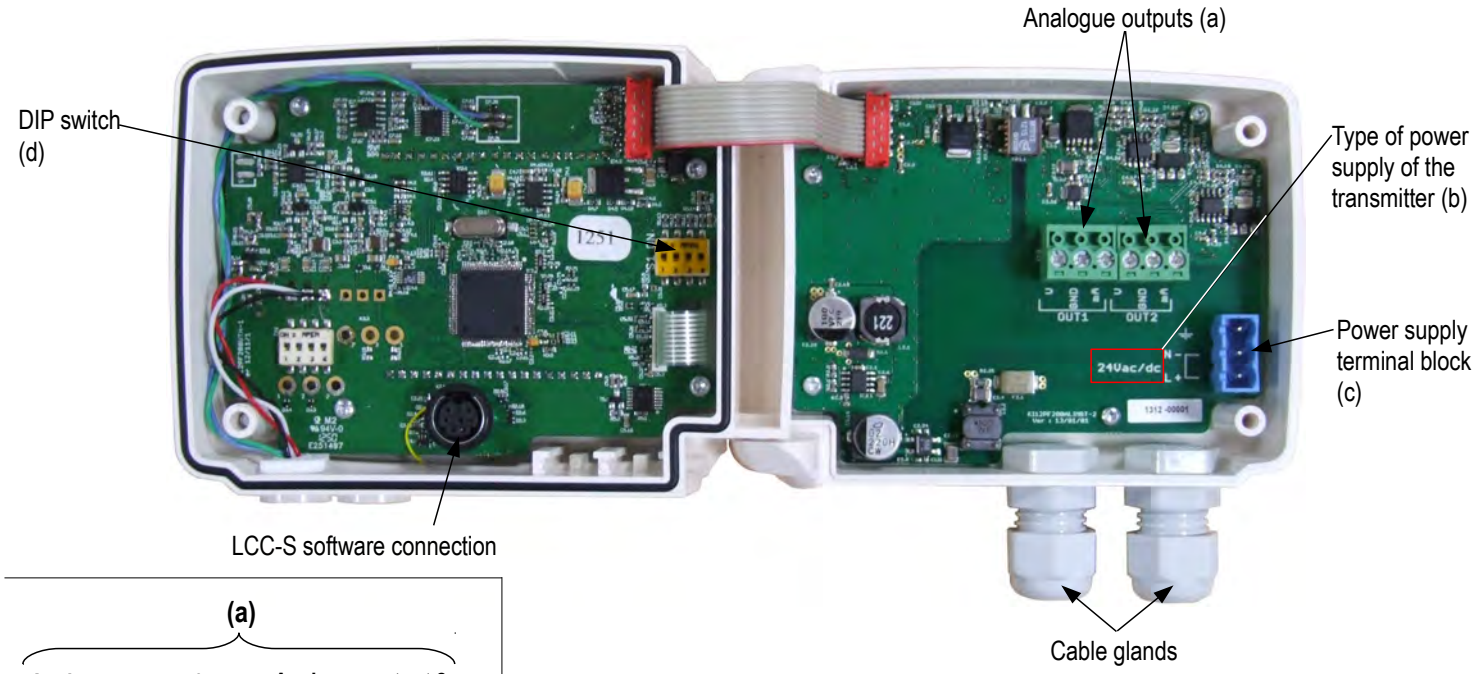
FUNCTION

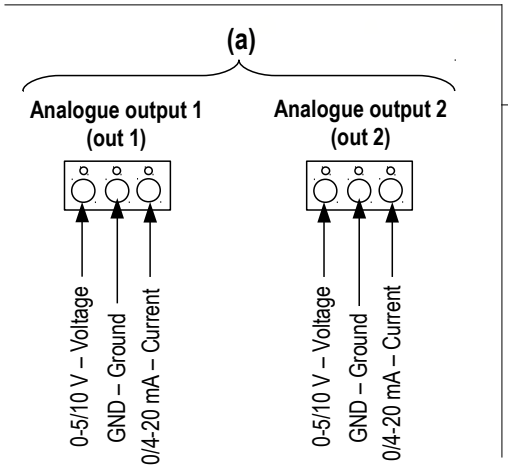
Class 210 transmitters have two analogue outputs which correspond to the two parameters displayed. It is possible to activate one or two outputs and for each output, to select between air velocity, temperature and air flow.

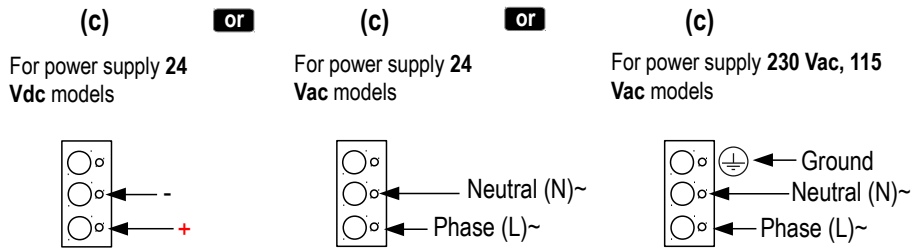
Features / *Function*	**Measuring ranges**	**Units and resolutions**
Air flow*	From 0 to 100 000 m^3/h (according to air velocity and duct dimension)	1m^3/h – 0.1 m^3/s 0.1l/s – 1 cfm

*Pitot tubes, Debimo blades, etc, are optional.

CONNECTIONS


Analogue outputs (a)
DIP switch (d)
Type of power supply of the transmitter (b)
Power supply terminal block (c)
LCC-S software connection
Cable glands

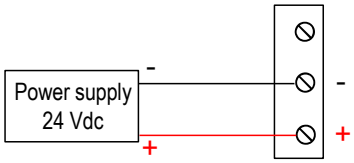




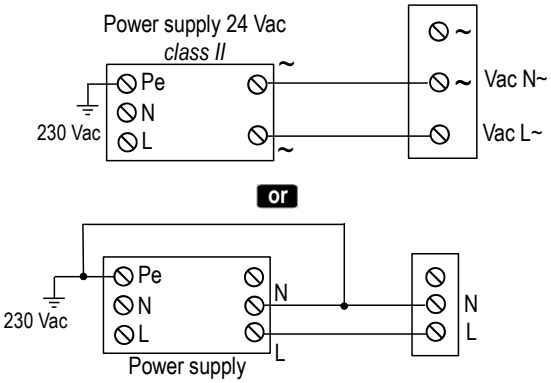
ELECTRICAL CONNECTIONS – as per *NFC15-100 standard*

This connection must be made by a qualified technician. To make the connection, the transmitter must not be energized.
Before making the connection, you must first check the power supply indicated on the transmitter board (see (b) on "Connections" part).

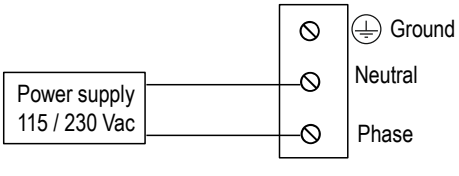
➢ **For transmitters with 24 Vdc power supply :**



➢ **For transmitters with 24 Vac power supply :**



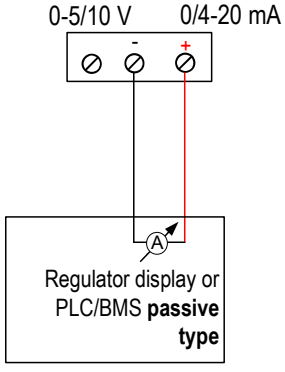
➢ **For transmitters with 115 or 230 Vac power supply :**



The selection of the output signal in voltage (0-10 V or 0-5 V) or in current (4-20 mA or 0-20 mA) is made via the DIP switch (d) of the electronic board of the transmitter : put the on-of switches as shown in the table below :

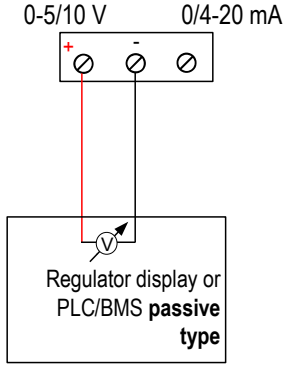
Configurations	4-20 mA	0-10 V	0-5 V	0-20 mA
Combinations	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4

➢ **Connection of the output in current 4-20 mA :**



4-20 mA output

➢ **Connection of output in voltage 0-10 V :**



0-10 V output

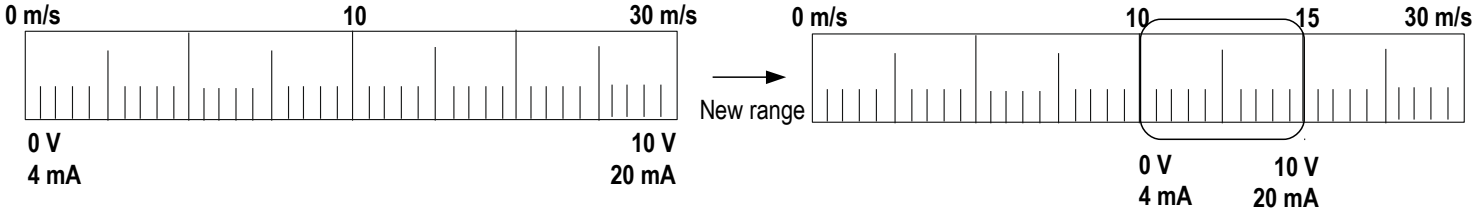
CONFIGURATION OF THE TRANSMITTERS

It is possible on the class 210 to configure all the parameters of the transmitter : units, measuring ranges, outputs, channels, calculation functions, etc, via different methods :

- **Via keypad** for models with display : a code-locking system allows to secure the installation (See class 210 user manual).
- **Via software** (optional) on all models. Simple user-friendly configuration. See LCC-SD user manual.

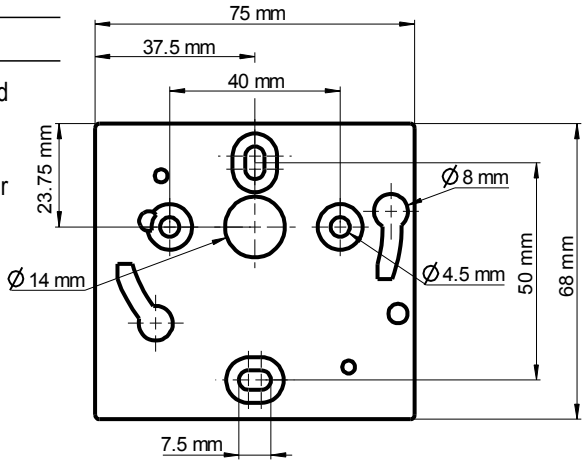
Configurable analogue output :
It is possible to configure your own intermediary ranges from 0-5 m/s to 0-30 m/s.
Caution : the minimum difference between the high range and the low range is 20.

Configure the range according to your needs : outputs are automatically adjusted to the new measuring range



MOUNTING

To mount the transmitter, mount the ABS plate on the wall (drilling : Ø6 mm, screws and pins are supplied).
Insert the transmitter on the fixing plate (see A on the drawing beside). Rotate the housing in clockwise direction until you hear a “click” which confirms that the transmitter is correctly installed.



CALIBRATION

Outputs diagnostic : With this function, you can check with a multimeter (or on a regulator / display, or a PLC / BMS) if the transmitter outputs work properly. The transmitter generates a voltage of 0 V, 5 V and 10 V or a current of 4 mA, 12 mA and 20 mA

Certificate : Class 210 transmitters are supplied with adjusting certificates. Calibration certificates are available as an option.

MAINTENANCE

Please avoid any aggressive solvent. Please protect the transmitter and its probes from any cleaning product containing formalin, that may be used for cleaning rooms or ducts.

OPTIONS AND ACCESSORIES

- **LCC-S :** configuration software with USB cable
- **Calibration certificate**
- Sliding fittings
- Mounting brackets
- Clean spray for hotwire probe

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KIMO INSTRUMENTS

Technical Data Sheet

Pressure / Temperature / Humidity / Air Velocity / Airflow / Sound level

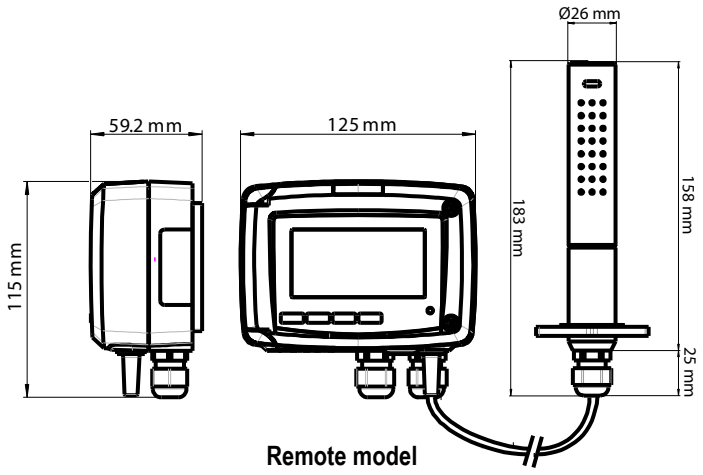
CE

CO and temperature transmitter
COT 210

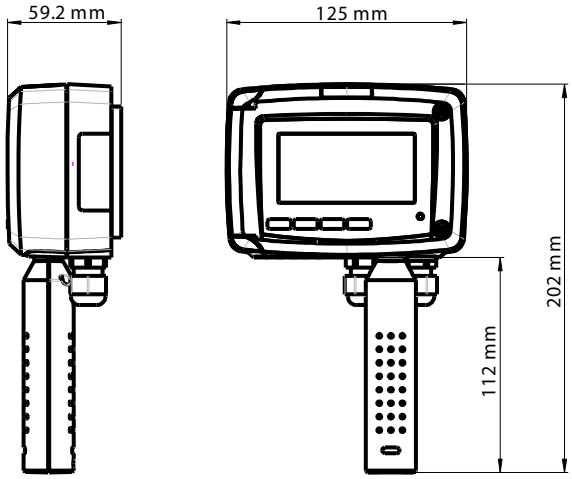
KEY POINTS

- Configurable ranges from 0 to 500 ppm and from 0 to 50 °C
- 4 wires analogue output 0-5/10 V or 0/4-20 mA
- Power supply 24 Vdc/Vac or 115/230 Vac
- Trend indicator
- ABS V0 IP65 housing, with or without display
- "¼ turn" system mounting with wall-mount plate

FEATURES OF THE HOUSING



Remote model



Ambient model

Material : ABS V0 as per UL94

Protection : IP65

Display : 75 x 40 mm, LCD 19 digits 2 lines

Height of digits : Values : 10 mm ; Units : 5 mm

Cable gland : For cables Ø 8 mm maximum

Weight : 320 g

PART NUMBER

To order, just add the codes to complete the part number :

COT 210 — [ ] — [ ] — [ ]

Power supply / Output
B : 24 Vac/Vdc
H : 115 or 230 Vac

Display
O : with display
N : without display

Type of probe
D : remote
S : ambient

Example : COT210 - BOS
Temperature and CO transmitter, power supply 24 Vac/Vdc, with display and ambient probe

TECHNICAL FEATURES IN TEMPERATURE

Measuring range	From 0 to +50 °C
Unit of measurement	°C / °F
Accuracy*	±0.3°C
Response time	T_{90} = 0.9 second for V_{air} = 1 m/s
Resolution	0.1 °C
Type of sensor	NTC
Type of fluid	Air and neutral gases

TECHNICAL FEATURES IN CO

Measuring range	From 0 to +500 ppm
Unit of measurement	ppm
Accuracy*	±3 ppm or 3% of the measured value
Response time	T63 = 35 s
Resolution	0.1 ppm
Type of sensor	Electrochemical sensor
Type of fluid	Air and neutral gases

**All the accuracies indicated in this technical datasheet were stated in laboratory conditions, and can be guaranteed for measurements carried out in the same conditions, or carried out with calibration compensation.

TECHNICAL FEATURES OF THE PROBES

- Ambient probe

Size	Length : 112 mm ; Diameter : 26 mm
Material	polycarbonate

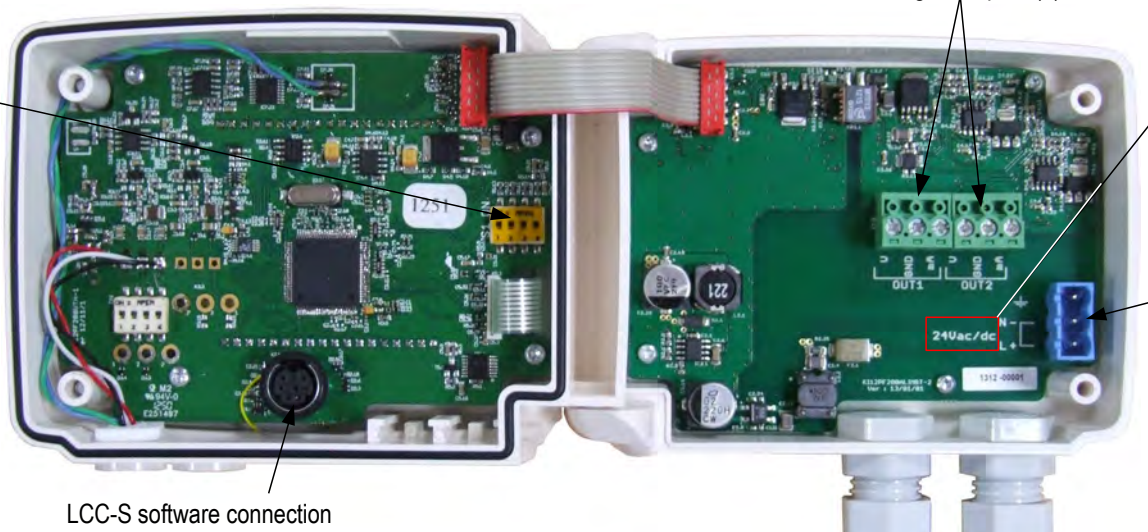
- Remote probe

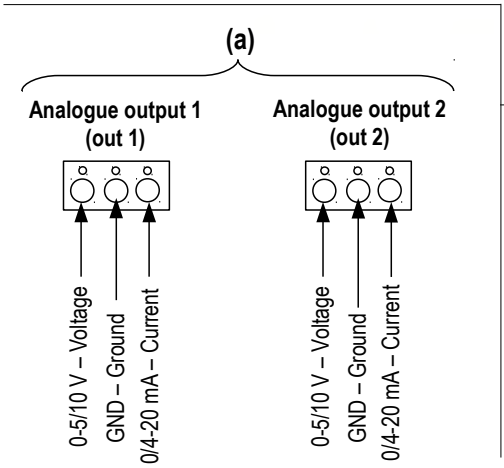
Size	Length : 158 mm (without cable gland), 183 mm (with cable gland) mm ; Diameter : 26 mm
Material	polycarbonate
Cable	Length : 2 m ; diameter : 4.2 mm

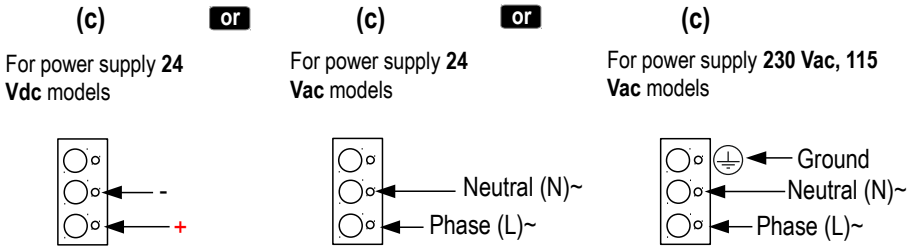
TECHNICAL SPECIFICATIONS

Power supply	24 Vac / Vdc ±10 % 115 Vac or 230 Vac ±10 %, 50-60 Hz
Sortie	2 x 4-20 mA ou 2 x 0-20 mA or 2 x 0-5 V or 2 x 0-10 V (4 wires) Maximum load : 500 Ohms (0/4-20 mA) Minimum load : 1 K Ohms (0-5/10 V)
Galvanic isolation	Inputs and outputs (115 Vac/230 Vac models) Outputs (24 Vac/Vdc model)
Consumption	5 VA
Electromagnetical compatibility	EN61326
Electrical connection	Screw terminal block for cable 2.5 mm²
PC communication	Kimo USB-Mini Din cable
Environment	Air and neutral gases
Type of fluid	Air and neutral gases
Operating temperature	From 0 to +50 °C
Storage temperature	From -10 to +70 °C

CONNECTIONS



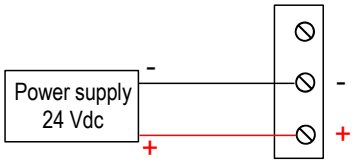




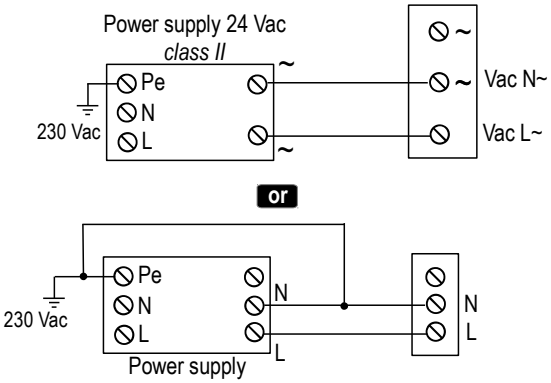
ELECTRICAL CONNECTIONS – as per *NFC15-100 standard*

This connection must be made by a qualified technician. To make the connection, the transmitter must not be energized.
Before making the connection, you must first check the power supply indicated on the transmitter board (see (b) on "Connections" part).

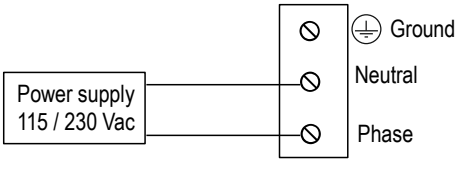
➢ **For transmitters with 24 Vdc power supply :**



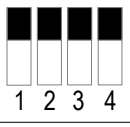
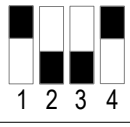
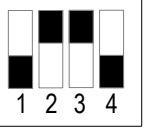
➢ **For transmitters with 24 Vac power supply :**



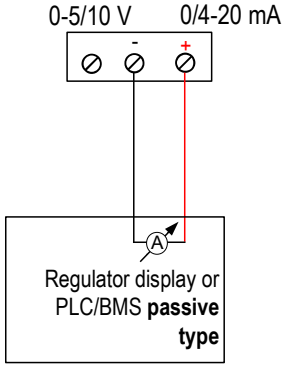
➢ **For transmitters with 115 or 230 Vac power supply :**



The selection of the output signal in voltage (0-10 V or 0-5 V) or in current (4-20 mA or 0-20 mA) is made via the DIP switch (d) of the electronic board of the transmitter : put the on-of switches as shown in the table below :

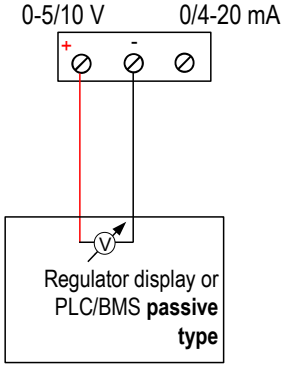
Configurations	4-20 mA	0-10 V	0-5 V	0-20 mA
Combinations				

➢ **Connection of the output in current 4-20 mA :**



4-20 mA output

➢ **Connection of output in voltage 0-10 V :**



0-10 V output

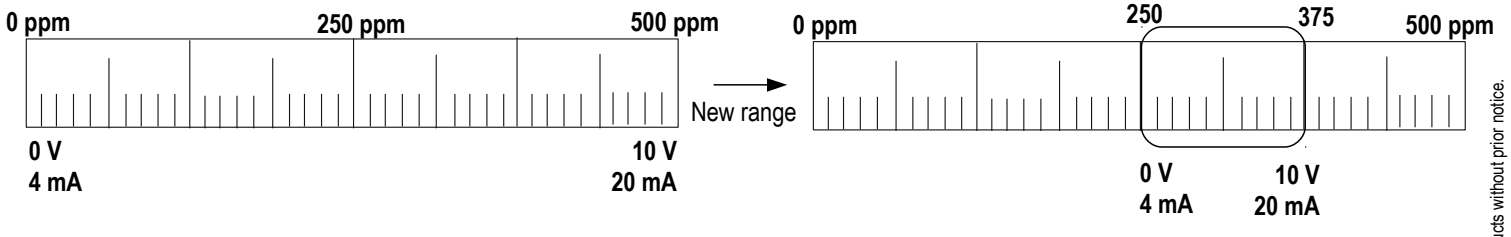
CONFIGURATION OF THE TRANSMITTERS

It is possible on the class 210 to configure all the parameters of the transmitter : units, measuring ranges, outputs, channels, calculation functions, etc, via different methods :

- **Keypad** for models with display : a code-locking system allows to secure the installation (See class 210 user manual).
- **Software** (optional) on all models. Simple user-friendly configuration. See LCC-SD user manual.

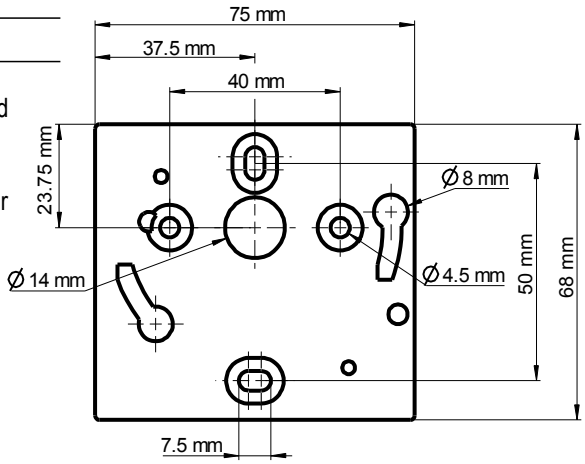
Configurable analogue output :
It is possible to configure your own intermediary ranges in CO and in temperature.
Caution : the minimum difference between the high range and the low range is 20.

Configure the range according to your needs : outputs are automatically adjusted to the new measuring range



MOUNTING

To mount the transmitter, mount the ABS plate on the wall (drilling : Ø6 mm, screws and pins are supplied).
Insert the transmitter on the fixing plate (see A on the drawing beside). Rotate the housing in clockwise direction until you hear a “click” which confirms that the transmitter is correctly installed.



CALIBRATION

Outputs diagnostic : With this function, you can check with a multimeter (or on a regulator / display, or a PLC / BMS) if the transmitter outputs work properly. The transmitter generates a voltage of 0 V, 5 V and 10 V or a current of 4 mA, 12 mA and 20 mA

Certificate : Class 210 transmitters are supplied with adjusting certificates. Calibration certificates are available as an option.

MAINTENANCE

Please avoid any aggressive solvent. Please protect the transmitter and its probes from any cleaning product containing formalin, that may be used for cleaning rooms or ducts.

OPTIONS AND ACCESSORIES

- **LCC-S :** configuration software with USB cable
- **Calibration certificate**

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KIMO INSTRUMENTS

Technical Data Sheet

Pressure / Temperature / Humidity / Air Velocity / Airflow / Sound level

CE

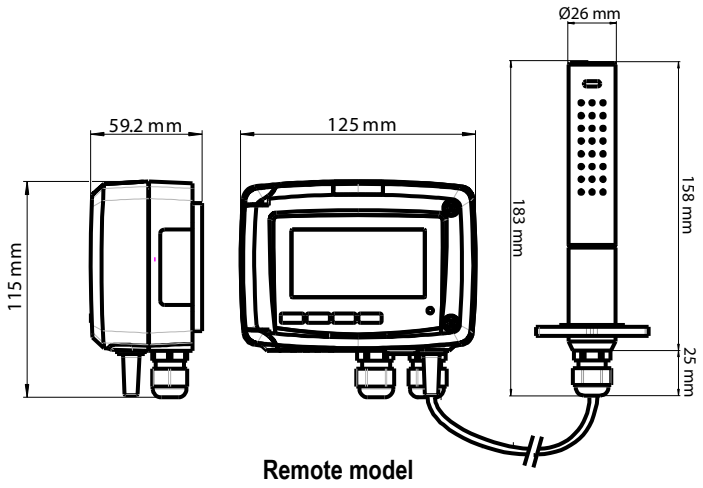
CO_2 and temperature transmitter

COT 212

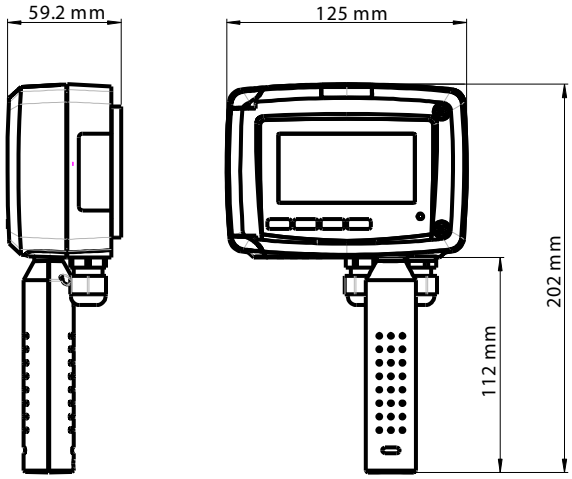
KEY POINTS

- Configurable ranges from 0 to 20000 ppm and from 0 to 50 °
- 4 wires analogue output 0-5/10 V or 0/4-20 mA
- Power supply 24 Vdc/Vac or 115/230 Vac
- Trend indicator
- ABS V0 IP65 housing, with or without display
- "¼ turn" system mounting with wall-mount plate

FEATURES OF THE HOUSING



Remote model



Ambient model

Material : ABS V0 as per UL94

Protection : IP65

Display : 75 x 40 mm, LCD 19 digits 2 lines.

Height of digits : Values : 10 mm ; Units : 5 mm

Cable gland : For cables Ø 8 mm maximum

Weight : 320 g

PART NUMBER

To order, just add the codes to complete the part number :

COT 212 — [ ] — [ ] — [ ]

Power supply / Output
B : 24 Vac/Vdc
H : 115 or 230 Vac

Display
O : with display
N : without display

Type of probe
D : remote
S : ambient

Example : COT212 - BOS
Temperature and CO_2 transmitter, power supply 24 Vac/Vdc, with display and ambient probe

TECHNICAL FEATURES IN TEMPERATURE

Measuring range	From 0 to +50 °C
Unit of measurement	°C / °F
Accuracy*	±0.3°C
Response time	T_{90} = 0.9 second for V_{air} = 1 m/s
Resolution	0.1 °C
Type of sensor	NTC
Type of fluid	Air and neutral gases

TECHNICAL FEAUTRES IN CO_2

Measuring range	From 0 to +20000 ppm
Unit of measurement	ppm
Accuracy*	±50 ppm or 3% of the measured value
Response time	T63 = 35 s
Resolution	1 ppm
Type of sensor	Infrared sensor
Type of fluid	Air and neutral gases

*All the accuracies indicated in this technical datasheet were stated in laboratory conditions, and can be guaranteed for measurements carried out in the same conditions, or carried out with calibration compensation.

TECHNICAL FEATURES OF THE PROBES

➢ Ambient probe

Size	Length : 112 mm ; Diameter : 26 mm
Material	polycarbonate

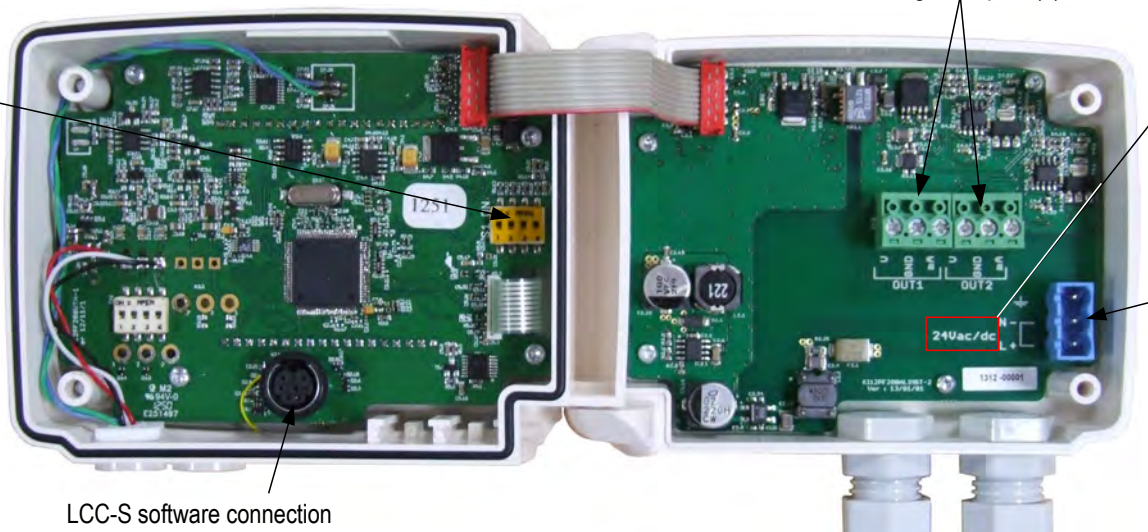
➢ Remote probe

Size	Length : 158 mm (without cable gland), 183 mm (with cable gland) mm ; Diameter : 26 mm
Material	polycarbonate
Cable	Length : 2 m ; diameter : 4.8 mm

TECHNICAL SPECIFICATIONS

Power supply	24 Vac / Vdc ±10 % 115 Vac or 230 Vac ±10 %, 50-60 Hz
Output	2 x 4-20 mA or 2 x 0-20 mA or 2 x 0-5 V or 2 x 0-10 V (4 wires) Maximum load : 500 Ohms (0/4-20 mA) Minimum load : 1 K Ohms (0-5/10 V)
Galvanic isolation	Inputs and outputs (115 Vac/230 Vac models) Outputs (24 Vac/Vdc model)
Consumption	5 VA
Electromagnetical compatibility	EN61326
Electrical connection	Screw terminal block for cable 2.5 mm²
PC communication	Kimo USB-Mini Din cable
Environment	Air and neutral gases
Type of fluid	Air and neutral gases
Operating temperature	From 0 to +50 °C
Storage temperature	From -10 to +70 °C

CONNECTIONS



(a)

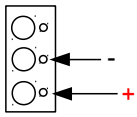
Analogue output 1 (out 1)

0-5/10 V – Voltage
GND – Ground
0/4-20 mA – Current

Analogue output 2 (out 2)

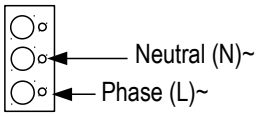
0-5/10 V – Voltage
GND – Ground
0/4-20 mA – Current

(c) For power supply **24 Vdc** models



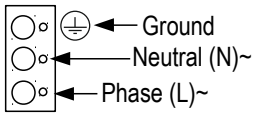
or

(c) For power supply **24 Vac** models



or

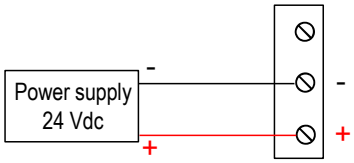
(c) For power supply **230 Vac, 115 Vac** models



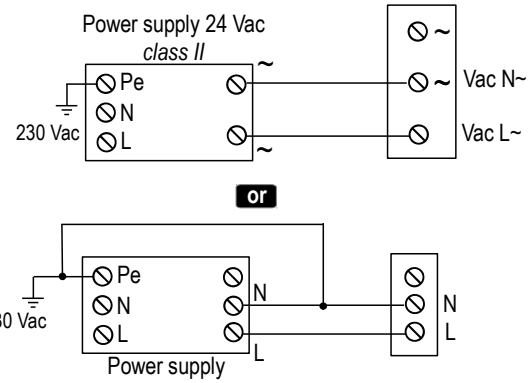
ELECTRICAL CONNECTIONS – as per *NFC15-100 standard*

This connection must be made by a qualified technician. To make the connection, the transmitter must not be energized.
Before making the connection, you must first check the power supply indicated on the transmitter board (see (b) on "Connections" part).

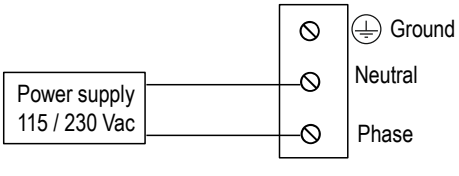
➢ **For transmitters with 24 Vdc power supply :**



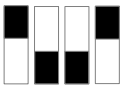
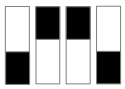
➢ **For transmitters with 24 Vac power supply :**



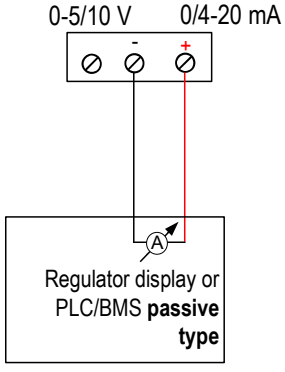
➢ **For transmitters with 115 or 230 Vac power supply :**



The selection of the output signal in voltage (0-10 V or 0-5 V) or in current (4-20 mA or 0-20 mA) is made via the DIP switch (d) of the electronic board of the transmitter : put the on-of switches as shown in the table below :

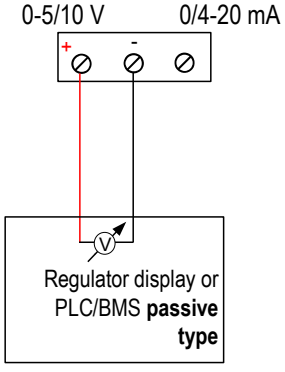
Configurations	4-20 mA	0-10 V	0-5 V	0-20 mA
Combinations				

➢ **Connection of the output in current 4-20 mA :**



4-20 mA output

➢ **Connection of output in voltage 0-10 V :**



0-10 V output

CONFIGURATION OF THE TRANSMITTERS

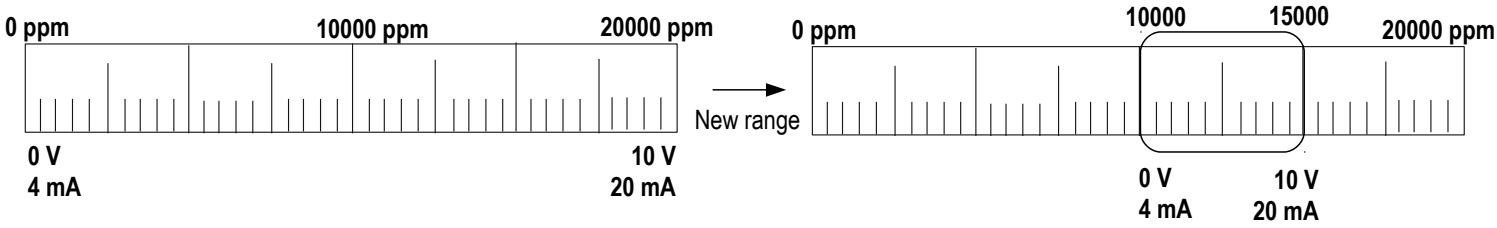
It is possible on the class 210 to configure all the parameters of the transmitter : units, measuring ranges, outputs, channels, calculation functions, etc, via different methods :

- **Keypad** for models with display : a code-locking system allows to secure the installation (See class 210 user manual).
- **Software** (optional) on all models. Simple user-friendly configuration. See LCC-SD user manual.

Configurable analogue output :
It is possible to configure your own intermediary ranges in CO_2 and in temperature.

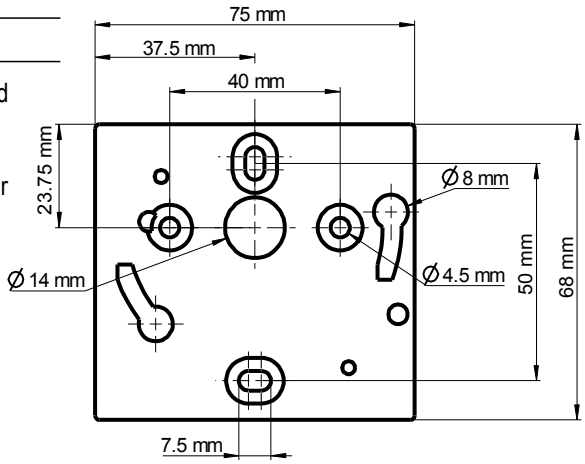
Caution : the minimum difference between the high range and the low range is 20.

Configure the range according to your needs : outputs are automatically adjusted to the new measuring range



MOUNTING

To mount the transmitter, mount the ABS plate on the wall (drilling : Ø6 mm, screws and pins are supplied).
Insert the transmitter on the fixing plate (see A on the drawing beside). Rotate the housing in clockwise direction until you hear a “click” which confirms that the transmitter is correctly installed.



CALIBRATION

Outputs diagnostic : With this function, you can check with a multimeter (or on a regulator / display, or a PLC / BMS) if the transmitter outputs work properly. The transmitter generates a voltage of 0 V, 5 V and 10 V or a current of 4 mA, 12 mA and 20 mA

Certificate : Class 210 transmitters are supplied with adjusting certificates. Calibration certificates are available as an option.

MAINTENANCE

Please avoid any aggressive solvent. Please protect the transmitter and its probes from any cleaning product containing formalin, that may be used for cleaning rooms or ducts.

OPTIONS AND ACCESSORIES

- **LCC-S :** configuration software with USB cable
- **Calibration certificate**

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